DEFENSE INFORMATION SYSTEMS AGENCY
JOINT INTEROPERABILITY TEST COMMAND
P.O. BOX 12798
FORT HUACHUCA, ARIZONA 85670-2798

IN REPLY REFER TO: Battlespace Communications Portfolio (JTE) 3 June 2008

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Special Interoperability Test Certification of the Computer Sciences Corporation (CSC) Advanced Defense Switched Network (DSN) Integrated Management Support System (ADIMSS) with Software Release 7.0

References: (a) DoD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01D, "Interoperability and Supportability of Information Technology and National Security Systems," 8 March 2006
(c) through (g) see enclosure 1

1. References (a) and (b) establish the Defense Information Systems Agency (DISA), Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.

2. The CSC ADIMSS with software release 7.0 is hereinafter referred to as the system under test (SUT). The SUT meets all of its critical interoperability requirements and is certified for joint use as the primary network management system within the DSN. This interoperability test status is based on evaluation of Chairman of the Joint Chiefs of Staff validated Unified Capabilities Requirements for Network Management (NM) and the overall system interoperability performance. No other configurations, features, or functions, except those cited within this report, are certified by the JITC, or authorized by the Program Management Office for use within the DSN. This certification expires upon changes that could affect interoperability, but no later than three years from the date of this memorandum.

3. This certification is based on interoperability testing conducted by JITC at the Global Information Grid Network Test Facility, Fort Huachuca, Arizona, from 10 through 14 March 2008 in an environment that emulates the DSN. The Certification Testing Summary (enclosure 2) provides more details about the test, documents the test results, and describes the tested network and system configurations.

4. Table 1 summarizes the interoperability of the SUT. The NM requirements are listed in table 2. This interoperability test status is based on the SUT's ability to meet:

a. DSN NM services as specified in reference (c).

b. NM interface and functional requirements as specified in reference (d).

c. NM system requirements as specified in reference (e).

d. Overall system interoperability performance derived from test procedures listed in references (f) and (g).

Table 1. SUT Interoperability Test Summary

UCR Network Management Requirement	Critical	TS/MFS/EO			SMEO				Other		Remarks
		Nortel CS2100	Siemens EWSD	Alcatel-Lucent 5ESS	Nortel CS1000M Single Group	Nortel CS1000M Cabinet	Avaya S8710	REDCOM IGX	Nortel PassPort	Tekelec STP	
Interfaces	Yes	C	C	C	C	C	C	C	C	C	See note 1.
Fault management	Yes	C	C	C	C	C	C	C	C	C	
Configuration management	Yes	C	C	C	C	C	C	C	NR	NR	See note 2.
Accounting management	Yes	C	C	C	C	C	C	C	NR	NR	See note 2.
Performance management	Yes	C	C	C	C	C	C	C	NR	NR	See note 2.
Network management controls	Yes	C	C	C	NR	NR	NR	NR	NR	NR	See note 3.
Remote access	Yes	C	C	C	C	C	C	C	NR	NR	See note 2.

LEGEND:

5ESS	- Class 5 Electronic Switching System	MFS	- Multifunction Switch
async	- asynchronous	NR	- Not Required
C	- Certified	SMEO	- Small End Office
CS	- Communication Server	STP	- Signal Transfer Point
DSN	- Defense Switched Network	SUT	- System Under Test
EO	- End Office	TS	- Tandem Switch
EWSD	- Elektronisches Wählsystem Digital	UCR	- Unified Capabilities Requirements
IGX	- Integrated Services Digital Network (ISDN) Gateway Exchange	X.25	- Interface between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit
ITU-T	- International Telecommunication Union - Telecommunication Standardization Sector		

NOTES:

1 Each DSN switch/element must provide at least one of three physical interfaces: Ethernet, async/serial, or ITU-T X.25.
2 Only required/critical for switch types TS, MFS, EO, and SMEO.
3 Only required/critical for switch types TS, MFS, and EO.

Table 2. Network Management Requirements

Item Number	Description	TS/MFS/EO			SMEO				OTHER		ADIMSS Test Plan Para.	UCR Reference
		Nortel CS2100	Siemens EWSD	Alcatel-Lucent 5ESS	Nortel CS1000M Single Group	Nortel CS1000M Cabinet	Avaya S8710	REDCOM IGX	Nortel PassPort	Tekelec STP		
PI.1	Interface to Switches/Elements through one of the following physical interfaces. See note.											
PI.1.1	Ethernet	C	C	C	C	C	C	C	C	C	B.1.5.1	UCR section 9.1 & ADIMSS Defined Requirement – ADIMSS SRS
PI.1.2	Serial/Async	C	C	C	C	C	C	C	C	C	B.1.5.1	USR section 9.1 & ADIMSS Defined Requirement – ADIMSS SRS
PI.1.3	ITU-T X.25	C	C	C	C	C	C	C	C	C	B.1.5.1	UCR section 9.1 & ADIMSS Defined Requirement – ADIMSS SRS
FM.1	Capture Alarm/Log Messages to an ADIMSS file.	R	R	R	R	R	R	R	R	R	B.2.5.1	UCR section 9.3 & ADIMSS Defined Requirement – ADIMSS SRS
CM.1	***Apply*** Manual NM Controls											UCR section 9.7.3
CM.1.1	Cancel From	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.1
CM.1.2	Cancel To	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.2
CM.1.3	Skip	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.3
CM.1.4	Reroute	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.4
CM.1.5	Code Gapping. Switches Perform This Function Using One of the Below NM Controls											UCR section 9.7.3.2.1
CM.1.5.1	Code Block	R	NA	NA	C	C	C	C	NA	NA	B.3.5.1	UCR section 9.7.3.2.1
CM.1.5.2	Code Gapping	R	NA	NA	C	C	C	C	NA	NA	B.3.5.1	UCR section 9.7.3.2.1
CM.1.5.3	Code Block Point	NA	R	NA	C	C	C	C	NA	NA	B.3.5.2	UCR section 9.7.3.2.1
CM.1.5.4	Destination Code Cancellation	NA	NA	R	C	C	C	C	NA	NA	B.3.5.3	UCR section 9.7.3.2.1
CM.2	***List*** Manual NM Controls											UCR section 9.7.3
CM.2.1	Cancel From	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.1
CM.2.2	Cancel To	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.2

Table 2. Network Management Requirements (continued)

Item Number	Description	TS/MFS/EO			SMEO				OTHER		ADIMSS Test Plan Para.	UCR Reference
		Nortel CS2100	Siemens EWSD	Alcatel-Lucent 5ESS	Nortel CS1000M Single Group	Nortel CS1000M Cabinet	Avaya S8710	REDCOM IGX	Nortel PassPort	Tekelec STP		
CM.2.3	Skip	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.3
CM.2.4	Reroute	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.4
CM.2.5	Code Gapping. Switches Perform This Function Using One of the Below NM Controls											UCR section 9.7.3.2.1
CM.2.5.1	Code Block	R	NA	NA	C	C	C	C	NA	NA	B.3.5.1	UCR section 9.7.3.2.1
CM.2.5.2	Code Gapping	R	NA	NA	C	C	C	C	NA	NA	B.3.5.1	UCR section 9.7.3.2.1
CM.2.5.3	Code Block Point	NA	R	NA	C	C	C	C	NA	NA	B.3.5.2	UCR section 9.7.3.2.1
CM.2.5.4	Destination Code Cancellation	NA	NA	R	C	C	C	C	NA	NA	B.3.5.3	UCR section 9.7.3.2.1
CM.3	***Remove*** Manual NM Controls											UCR section 9.7.3
CM.3.1	Cancel From	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.1
CM.3.2	Cancel To	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.2
CM.3.3	Skip	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.3
CM.3.4	Reroute	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.4
CM.3.5	Code Gapping. Switches Perform This Function Using One of the Below NM Controls											UCR section 9.7.3.2.1
CM.3.5.1	Code Block	R	NA	NA	C	C	C	C	NA	NA	B.3.5.1	UCR section 9.7.3.2.1
CM.3.5.2	Code Gapping	R	NA	NA	C	C	C	C	NA	NA	B.3.5.1	UCR section 9.7.3.2.1
CM.3.5.3	Code Block Point	NA	R	NA	C	C	C	C	NA	NA	B.3.5.2	UCR section 9.7.3.2.1
CM.3.5.4	Destination Code Cancellation	NA	NA	R	C	C	C	C	NA	NA	B.3.5.3	UCR section 9.7.3.2.1
AM.1	Collect and Store Call Detail Recording (CDR) Data	R	R	R	R	R	R	R	NA	NA	B.4.5.1	UCR section 9.5.1
PM.1	Collect and Accurately Store Traffic Data Measurements Every 5 or 15 Minutes	R	R	R	C	C	C	C	NA	NA	B.5.5.1	UCR section 9.6, Table 9-2

Table 2. Network Management Requirements (continued)

Item Number	Description	TS/MFS/EO			SMEO				OTHER		ADIMSS Test Plan Para.	UCR Reference
		Nortel CS2100	Siemens EWSD	Alcatel-Lucent 5ESS	Nortel CS1000M Single Group	Nortel CS1000M Cabinet	Avaya S8710	REDCOM IGX	Nortel PassPort	Tekelec STP		
PM.2	Collect and Accurately Store Traffic Data Measurements Every 5, 15, 30 or 60 Minutes	NA	NA	NA	R	R	R	R	NA	NA	B.5.5.1	UCR section 9.6, Table 9-2
RA.1	Remote Access to Switch	R	R	R	R	R	R	R	NA	NA	B.6.5.1	UCR section 9.8

LEGEND:

5ESS	- Electronic Switching System Number 5	NA	- Not Applicable
ADIMSS	- Advanced DSN Integrated Management Support System	NM	- Network Management
AM	- Accounting Management	Para	- Paragraph
async	- asynchronous	PI	- Physical Interface
C	- Conditional	PM	- Performance Management
CM	- Configuration Management	R	- Required
CS	- Communication Server	RA	- Remote Access
DSN	- Defense Switched Network	SMEO	- Small End Office
EO	- End Office	SRS	- Software Requirements Specification
EWSD	- Elektronisches Wählsystem Digital	STP	- Signal Transfer Point
FM	- Fault Management	TS	- Tandem Switch
IGX	- Integrated Services Digital Network (ISDN) Gateway Exchange	UCR	- Unified Capabilities Requirement
ITU-T	- International Telecommunication Union - Telecommunication Standardization Sector	X.25	- Interface between Data Terminal Equipment and Data Circuit-terminating Equipment for terminals operating in the packet mode and connected to public data networks by dedicated circuit
MFS	- Multifunction Switch		

NOTE: Each DSN switch/element must provide at least one of three physical interfaces: Ethernet, async/serial, or ITU-T X.25.

5. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at https://stp.fhu.disa.mil. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at http://jit.fhu.disa.mil (NIPRNet), or http://199.208.204.125 (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at http://jitc.fhu.disa.mil/tssi.

6. The JITC point of contact is Michael Napier, DSN 879-6787, commercial (520) 538-6787, FAX DSN 879-4347, or e-mail to michael.napier@disa.mil. The tracking number for the SUT is 0719301.

FOR THE COMMANDER:

2 Enclosures: a/s

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Defense Information Systems Agency (DISA), ATTN: GS23 (Mr. McLaughlin), Room 5W23, 5275 Leesburg Pike (RTE 7), Falls Church, VA 22041

ADDITIONAL REFERENCES

(c) Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6215.01C, "Policy for Department of Defense Voice Services with Real Time Services (RTS)," 9 November 2007
(d) Defense Information Systems Agency, "Department of Defense Networks Unified Capabilities Requirements," 21 December 2007
(e) "Advanced Defense Switched Network (DSN) Integrated Management Support System (ADIMSS) Software Requirements Specification (SRS)," June 2004
(f) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006
(g) Joint Interoperability Test Command, "Defense Switched Network ADIMSS Test Plan," March 2008

CERTIFICATION TESTING SUMMARY

1. SYSTEM TITLE. Computer Sciences Corporation (CSC) Advanced Defense Switched Network (DSN) Integrated Management Support System (ADIMSS) with Software Release 7.0 hereinafter referred to as the System Under Test (SUT).

2. PROPONENT. Defense Information Systems Agency (DISA).

3. PROGRAM MANAGER. Mr. Michael Southard, GS23, Room 5W23, 5275 Leesburg Pike, Falls Church, VA 22041, E-mail: mike.southard@disa.mil.

4. TESTER. Joint Interoperability Test Command (JITC), Fort Huachuca, Arizona.

5. SYSTEM UNDER TEST DESCRIPTION. DISA has single system management responsibility for the DSN Tandem Switches (TS), Multifunction Switches (MFS), End Office Switches (EO), and Small End Office Switches (SMEO). The SUT provides all Network Management (NM) capabilities for the DSN including fault management, performance management, configuration management, accounting management, and remote access to switching platforms and key non-switch network elements. These network elements provide either transmission path conditioning (e.g., voice compression, echo cancellation, etc.) or network signaling and control (e.g., signal transfer points).

6. OPERATIONAL ARCHITECTURE. The SUT is composed of a main, UNIX- based computer system with the software application located at the DISA Regional Network Operations and Security Centers. It also includes the NM telemetry system that connects the SUT to the DSN elements and, in the case of DSN TS/MFS/EO telephone switch locations, a front-end processor (computer system) that contains a portion of the SUT software application. Figure 2-1 depicts the notional configuration of the basic ADIMSS architecture as operationally fielded and as configured in the JITC Global Information Grid Network Test Facility (GNTF). The assets of the JITC are used to the greatest extent possible to emulate the operational environment.

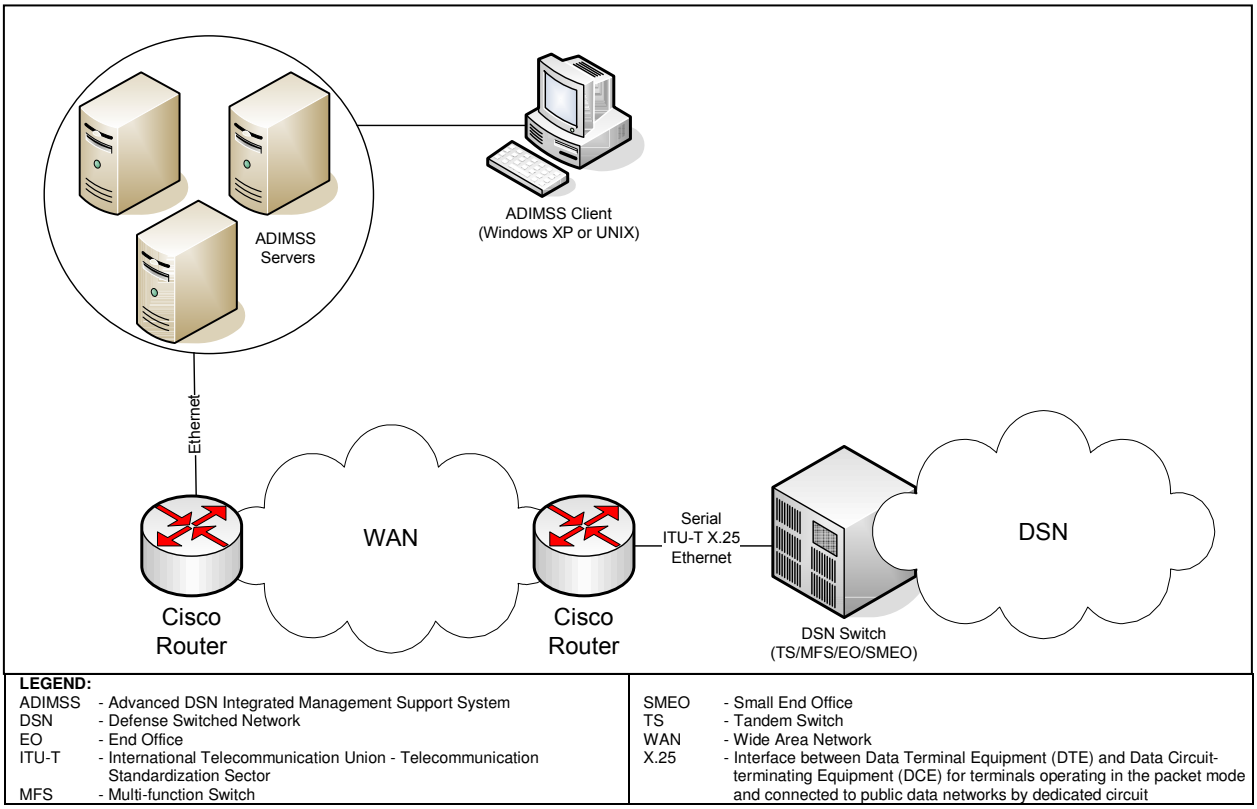


Figure 2-1. ADIMSS DSN Notional Diagram

7. REQUIRED SYSTEM INTERFACES. DSN general and ADIMSS specific requirements are listed in tables 2-1 and 2-2 respectively. These requirements are derived from:

a. DSN services for Network and Applications specified in Chairman of the Joint Chiefs of Staff instruction (CJCSI) 6215.01C, “Policy for Department of Defense Voice Services with Real Time Services (RTS)”, 9 November 2007.

b. DISA, Unified Capacities Requirements (UCR) NM requirements for TS, MFS, EO, and SMEO, 23 March 2008.

c. DSN ADIMSS Software Requirements Specification (SRS), June 2004.

Table 2-1. DSN Network Management Requirements

DSN Features & Capabilities			
Features/ Capabilities	**Critical**	**Requirements Required (R) or Conditional (C)**	**References**
Network Management	Yes	• Interfaces (R^1) • Fault management (R) • Configuration management (R^2) • Accounting management (R^2) • Performance management (R^2) • NM controls (R^3) • Remote access (R^2)	• UCR Sect. 9.1 • UCR Sect. 9.3 • UCR Sect. 9.4 • UCR Sect. 9.5 • UCR Sect. 9.6 • UCR Sect. 9.7 • UCR Sect. 9.8

LEGEND:

async	- asynchronous	R	- Required
DSN	- Defense Switched Network	Sect.	- Section
EO	- End Office	SMEO	- Small End Office
TU-T	- International Telecommunication Union - Telecommunication Standardization Sector	TS	- Tandem Switch
UCR	- Generic Switching Center Requirements	X.25	- Interface between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit
MFS	- Multifunction Switch		
NM	- Network Management		

NOTES:

1 Each DSN switch/element must provide at least one of three physical interfaces: Ethernet, async/serial, or ITU-T X.25.
2 Only required/critical for switch types TS, MFS, EO, and SMEO.
3 Only required/critical for switch types TS, MFS, and EO.

Table 2-2. ADIMSS Network Management Requirements

Item Number	Description	TS/MFS/EO			SMEO				OTHER		ADIMSS Test Plan Para.	UCR Reference
		Nortel CS2100	Siemens EWSD	Alcatel-Lucent 5ESS	Nortel CS1000M Single Group	Nortel CS1000M Cabinet	Avaya S8710	REDCOM IGX	Nortel PassPort	Tekelec STP		
PI.1	Interface to Switches/Elements through one of the following physical interfaces. See note.											
PI.1.1	Ethernet	C	C	C	C	C	C	C	C	C	B.1.5.1	UCR section 9.1 & ADIMSS Defined Requirement – ADIMSS SRS
PI.1.2	Serial/Async	C	C	C	C	C	C	C	C	C	B.1.5.1	USR section 9.1 & ADIMSS Defined Requirement – ADIMSS SRS
PI.1.3	ITU-T X.25	C	C	C	C	C	C	C	C	C	B.1.5.1	UCR section 9.1 & ADIMSS Defined Requirement – ADIMSS SRS
FM.1	Capture Alarm/Log Messages to an ADIMSS file.	R	R	R	R	R	R	R	R	R	B.2.5.1	UCR section 9.3 & ADIMSS Defined Requirement – ADIMSS SRS
CM.1	***Apply*** Manual NM Controls											UCR section 9.7.3
CM.1.1	Cancel From	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.1
CM.1.2	Cancel To	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.2
CM.1.3	Skip	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.3
CM.1.4	Reroute	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.4
CM.1.5	Code Gapping. Switches Perform This Function Using One of the Below NM Controls											UCR section 9.7.3.2.1
CM.1.5.1	Code Block	R	NA	NA	C	C	C	C	NA	NA	B.3.5.1	UCR section 9.7.3.2.1
CM.1.5.2	Code Gapping	R	NA	NA	C	C	C	C	NA	NA	B.3.5.1	UCR section 9.7.3.2.1
CM.1.5.3	Code Block Point	NA	R	NA	C	C	C	C	NA	NA	B.3.5.2	UCR section 9.7.3.2.1
CM.1.5.4	Destination Code Cancellation	NA	NA	R	C	C	C	C	NA	NA	B.3.5.3	UCR section 9.7.3.2.1
CM.2	***List*** Manual NM Controls											UCR section 9.7.3
CM.2.1	Cancel From	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.1
CM.2.2	Cancel To	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.2

Table 2-2. Network Management Requirements (continued)

Item Number	Description	TS/MFS/EO			SMEO				OTHER		ADIMSS Test Plan Para.	UCR Reference
		Nortel CS2100	Siemens EWSD	Alcatel-Lucent 5ESS	Nortel CS1000M Single Group	Nortel CS1000M Cabinet	Avaya S8710	REDCOM IGX	Nortel PassPort	Tekelec STP		
CM.2.3	Skip	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.3
CM.2.4	Reroute	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.4
CM.2.5	Code Gapping. Switches Perform This Function Using One of the Below NM Controls											UCR section 9.7.3.2.1
CM.2.5.1	Code Block	R	NA	NA	C	C	C	C	NA	NA	B.3.5.1	UCR section 9.7.3.2.1
CM.2.5.2	Code Gapping	R	NA	NA	C	C	C	C	NA	NA	B.3.5.1	UCR section 9.7.3.2.1
CM.2.5.3	Code Block Point	NA	R	NA	C	C	C	C	NA	NA	B.3.5.2	UCR section 9.7.3.2.1
CM.2.5.4	Destination Code Cancellation	NA	NA	R	C	C	C	C	NA	NA	B.3.5.3	UCR section 9.7.3.2.1
CM.3	***Remove*** Manual NM Controls											UCR section 9.7.3
CM.3.1	Cancel From	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.1
CM.3.2	Cancel To	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.2
CM.3.3	Skip	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.3
CM.3.4	Reroute	R	R	R	C	C	C	C	NA	NA	B.3.5.1 B.3.5.2 B.3.5.3	UCR section 9.7.3.1.4
CM.3.5	Code Gapping. Switches Perform This Function Using One of the Below NM Controls											UCR section 9.7.3.2.1
CM.3.5.1	Code Block	R	NA	NA	C	C	C	C	NA	NA	B.3.5.1	UCR section 9.7.3.2.1
CM.3.5.2	Code Gapping	R	NA	NA	C	C	C	C	NA	NA	B.3.5.1	UCR section 9.7.3.2.1
CM.3.5.3	Code Block Point	NA	R	NA	C	C	C	C	NA	NA	B.3.5.2	UCR section 9.7.3.2.1
CM.3.5.4	Destination Code Cancellation	NA	NA	R	C	C	C	C	NA	NA	B.3.5.3	UCR section 9.7.3.2.1
AM.1	Collect and Store Call Detail Recording (CDR) Data	R	R	R	R	R	R	R	NA	NA	B.4.5.1	UCR section 9.5.1
PM.1	Collect and Accurately Store Traffic Data Measurements Every 5 or 15 Minutes	R	R	R	C	C	C	C	NA	NA	B.5.5.1	UCR section 9.6, Table 9-2

Table 2-2. Network Management Requirements (continued)

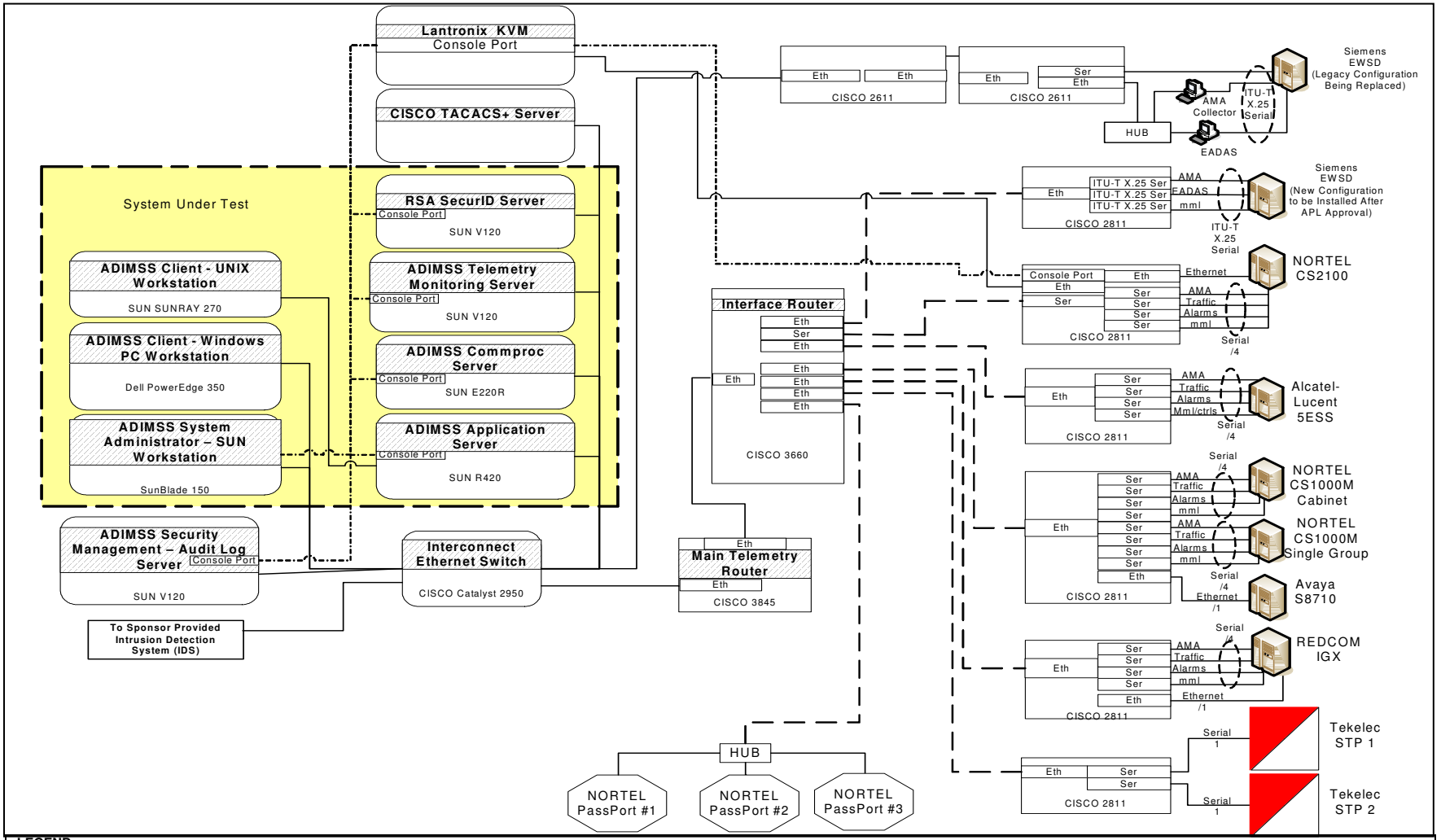
Item Number	Description	TS/MFS/EO			SMEO				OTHER		ADIMSS Test Plan Para.	UCR Reference
		Nortel CS2100	Siemens EWSD	Alcatel-Lucent 5ESS	Nortel CS1000M Single Group	Nortel CS1000M Cabinet	Avaya S8710	REDCOM IGX	Nortel PassPort	Tekelec STP		
PM.2	Collect and Accurately Store Traffic Data Measurements Every 5, 15, 30 or 60 Minutes	NA	NA	NA	R	R	R	R	NA	NA	B.5.5.1	UCR section 9.6, Table 9-2
RA.1	Remote Access to Switch	R	R	R	R	R	R	R	NA	NA	B.6.5.1	UCR section 9.8

LEGEND:

5ESS	- Electronic Switching System Number 5	NA	- Not Applicable
ADIMSS	- Advanced DSN Integrated Management Support System	NM	- Network Management
AM	- Accounting Management	Para	- Paragraph
async	- asynchronous	PI	- Physical Interface
C	- Conditional	PM	- Performance Management
CM	- Configuration Management	R	- Required
CS	- Communication Server	RA	- Remote Access
DSN	- Defense Switched Network	SMEO	- Small End Office
EO	- End Office	SRS	- Software Requirements Specification
EWSD	- Elektronisches Wählsystem Digital	STP	- Signal Transfer Point
FM	- Fault Management	TS	- Tandem Switch
IGX	- Integrated Services Digital Network (ISDN) Gateway Exchange	UCR	- Unified Capabilities Requirement
ITU-T	- International Telecommunication Union - Telecommunication Standardization Sector	X.25	- Interface between Data Terminal Equipment and Data Circuit-terminating Equipment for terminals operating in the packet mode and connected to public data networks by dedicated circuit
MFS	- Multifunction Switch		

NOTE: Each DSN switch/element must provide at least one of three physical interfaces: Ethernet, async/serial, or ITU-T X.25.

8. TEST NETWORK DESCRIPTION. The SUT was tested at JITC's GNTF in a manner and configuration similar to that of the DSN operational environment. This test was conducted using the detailed configurations depicted in figure 2-2.



LEGEND:

5ESS	- Class 5 Electronic Switching System	crtls	- Controls	ITU-T	- International Telecommunication Union Telecommunication Standardization Sector	STP	- Signal Transfer Point
ADIMSS	- Advanced Defense Switched Network Integrated Management Support System	Commproc	- Communications Processor			TACACS	- Terminal Access Controller Access Control System
AMA	- Automatic Message Accounting	EADAS	- Engineering and Administrative Data Acquisition System	KVM	- keyboard, video, mouse	X.25	- Interface between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit
APL	- Approved Products List	Eth	- Ethernet	mml	- man machine language		
CS1000	- Communication Server 1000	EWSD	- Elektronisches Wählsystem Digital	RSA	- An encryption Algorithm		
CS2100	- Communication Server 2100	IGX	- ISDN Gateway Exchange	Ser	- Serial		

Figure 2-2. Detailed ADIMSS 7.0 Test Network

9. SYSTEM CONFIGURATIONS. Table 2-2 provides the system configurations, hardware, and software components tested with the SUT. The SUT was tested in an operationally realistic environment to determine interoperability with a complement of DSN switches noted in table 2-2. Table 2-2 lists the DSN switches which depict the tested configuration and is not intended to identify the only switches that are certified with the SUT. The SUT is certified with switching systems listed on the DSN Approved Products List (APL) that offer the same certified interfaces.

Table 2-4. Tested System Configurations

System Name		Software Release
Nortel Networks CS2100		Succession Enterprise (SE)09
Nortel Meridian CS1000M Single Group		4.5w
Nortel Meridian CS1000M Cabinet		4.5w
Avaya S8710		Communication Manager (CM) 4.0 (R014x.00.2.731.7: Super Patch 14419)
Lucent 5ESS		5E16.2 Broadcast Warning Message (BWM) 07-0003
Redcom IGX		6.1A Revision 1, with Specified Patch Group 8 (6.1A R1P8) build 20 August 2007
Siemens EWSD MFS/EO		19d with Patch Set 46
Tekelec STP		35.6.0-56.51.0
Nortel PassPort 7480		PassPort Carrier Release (PCR) 5.2
SUT	SUN Microsystems E220R (communications processor)	SUN Solaris 10 OS, RSA SecureID 6.1, McAfee 5.1
	SUN Microsystems R420 (Application Server)	SUN Solaris 10 OS, ADIMSS Software – Release 7.0, Oracle 10gr2 – Release 10.1.0.5, OpenSSH 2.0 McAfee 5.1, RSA SecureID 6.1, Bart
	SUN Microsystems /SUNFire V120 (RSA Server)	SUN Solaris 10 OS, RSA SecureID 6.1, McAfee 5.1
	SUN Microsystems /SUNFire V120 (Telemetry Monitoring Server)	SUN Solaris 10 OS, OpenSSH 2.0, McAfee 5.1 RSA SecureID 6.1, HP Open View 7.51
	SUN Microsystems SunRay 270 (ADIMSS Client)	SUN Solaris 10 OS
	SUN Microsystems SunBlade 150 (SUN Workstation)	SUN Solaris 10 OS, OpenSSH 2.0, McAfee 5.1, RSA SecureID 6.1
	Dell PowerEdge 350	Windows XP with SP2, Avaya "Server.exe" AMA Collector –Release 2.1, ADIMSS Software 7.0, Java Runtime Environment 1.6-3, TeraTerm 2.3, cotsSSH, RSA SecureID 6.1, McAfee 8.0.1, Hercules Agent 4.0.2, Retina Scanner Engines 5.8.8
Ancillary Equipment	SUN Microsystems V120 (Audit Log Server)	Solars 10, OpenSSH, McAfee 5.1, RSA
	Lantronix KVM	Linux, Firmware v5.2, OpenSSH
	Cisco TACACS+ Server	ACSE-3.3-SW-K9, RSA SecureID 6.1 WEB
	Cisco Catalyst 2950 (interconnect Ethernet switch)	IOS 12.4.12
	Cisco 2611 (2 for EWSD legacy config)	IOS 12.4.12
	Cisco 3845 (Main Telemetry Router)	IOS 12.4.12, IPSec, SNMPv3

LEGEND:

5ESS	- Class 5 Electronic Switching System
ADIMSS	- Advanced DSN Integrated Management Support System
AMA	- Automatic Message Accounting
cotsSSH	- Commercial off the Shelf Secure Shell
CS	- Communication Server
DSN	- Defense Switched Network
EWSD	- Elektronisches Wählsystem Digital
HP	- Hewlette Packard
IGX	- Integrated Services Digital Network (ISDN) Gateway Exchange
IOS	- Internetwork Operating System
IP	- Internet Protocol
IPSec	- IP Security
KVM	- keyboard, video, mouse
OpenSSH	- Open Secure Shell
OS	- Operating System
RSA	- an encryption algorithm
SNMPv3	- Simple Network Management Protocol version 3
SP2	- Service Pack 2
SSH	- Secure Shell
STP	- Signal Transfer Point
SUT	- System Under Test
TACACS	- Terminal Access Controller Access Control System
WEB	- World Wide Web

10. TESTING LIMITATIONS. None

11. TEST RESULTS

a. Discussion. The requirements listed in the UCR, section 9, are detailed as NM requirements for DSN switches. The SUT was tested with these requirements as the NM system connected to the DSN switches.

(1) In accordance with the UCR, section 9.1, DSN switching systems shall provide DSN NM data to the ADIMSS via one of the three following physical interfaces: Ethernet, serial asynchronous (Electronic Industries Alliance [EIA]-232, or serial synchronous International Telecommunication Union - Telecommunication Standardization Sector [ITU-T] X.25. The SUT met all critical interoperability certification requirements for physical interfaces with Ethernet, EIA-232, and ITU-T X.25.

(2) In accordance with the UCR, section 9.3, the DSN telephone switching systems shall detect fault conditions and generate alarm notifications. The SUT met all critical interoperability certification requirements for Fault Management. Alarm notifications and log messages were captured and saved to an ADIMSS file.

(3) In accordance with the UCR, section 9.4, Configuration Management in a switching system shall be in accordance with Telcordia Technologies GR-472-CORE, *Network Element Configuration Management,* Revision 2, Feb. 1999, Section 4. The SUT met all critical interoperability requirements for Configuration Management by connecting to the switching systems remotely and emulating their local maintenance terminals.

(4) In accordance with the UCR, section 9.5, the Automated Message Accounting (AMA) process in a switching system provides usage related data to perform customer billing and Call Detail Recording (CDR). The SUT met all critical interoperability requirements for AMA by collecting and storing CDR data.

(5) In accordance with the UCR, section 9.6, the DSN switches must meet the switch performance data requirements in the UCR, table 9-2. The SUT met all critical interoperability requirements for Performance Management by collecting and accurately storing traffic data measurements every five or fifteen minutes.

(6) The UCR, section 9.7.3, manual network management controls are those controls that are implemented by the personnel at a network management center. Manual controls supplement the automatic controls, and they are used to handle the network problems that require flexibility and human judgment. The SUT met all critical interoperability certification requirements for Features and Functions. Although the UCR, section 9.7.3, requirements specify a lengthy list of manual and automatic controls, only a small subset of these controls is required to prove the capability of the SUT to implement them.

(7) In accordance with the UCR, section 9.4, the DSN switching system shall be able to receive remote commands for configuring the network related entries within the switch. The SUT met all critical interoperability requirements for Remote Access by successfully connecting through the respective switching systems access channels.

b. System Interoperability Results. The SUT met all of its critical interoperability requirements in accordance with the requirements set forth in the UCR as well as the DSN ADIMSS SRS and is certified for joint use within the DSN as the primary network management system. Table 2-5 provides the System Interoperability Summary. Table 2-6 provides the SUT Interoperability Requirements and Status.

Table 2-5. SUT Interoperability Test Summary

Physical Interface								
Test Para.	Test Purpose	Required Result					Inspected (Y/N)	
		Result	Switch/ Element	EI	A/S	ITU-T X.25		
B.1.5.1	Verify that the physical connection to the switch/element for network management (ADIMSS) use is one of the approved types.	The connection will either be made via an RJ-45 connection indicating Ethernet or via an EIA-232 connection indicating async/serial.	CS2100	X	X		Nortel CS2100	Y
			EWSD			X	Siemens EWSD	Y
			5ESS		X		Alcatel-Lucent 5ESS	Y
			CS1000	X	X		Nortel CS1000M	Y
			S8710	X			Avaya S8710	Y
			IGX	X	X		REDCOM IGX	Y
			PassPort	X			Nortel PassPort	Y
			T-STP		X		Tekelec STP	Y
Fault Management								
Test Para.	**Test Purpose**	**Required Result**					**Pass/Fail (P/F/NT)**	
B.2.5.1	Verify that the ADIMSS can capture an alarm/log message when an alarm event is generated and assign it to the proper switch/element.	The alarm/log message from the switch/element must be displayed in the in the open terminal window.					Nortel CS2100	P
							Siemens EWSD	P
							Alcatel-Lucent 5ESS	P
							Nortel CS1000	P
							Avaya S8710	P
							REDCOM IGX	P
							Nortel PassPort	P
							Tekelec STP	P

Table 2-5. SUT Interoperability Test Summary (continued)

Configuration Management and NM Controls				
Test Para.	**Test Purpose**	**Required Result**	**Pass/Fail (P/F/NT)**	
B.3.5.1	Verify that the ADIMSS can issue, list, and remove network management controls commands to the ***NORTEL CS2100*** DSN switch.	View telnet session window for indications from ***CS2100*** that the ***Cancel From*** control was applied and removed.	***Cancel From***	P
		View telnet session window for indications from ***CS2100*** that the ***Cancel To*** control was applied and removed.	***Cancel To***	P
		View telnet session window for indications from ***CS2100*** that the ***Skip*** control was applied and removed.	***Skip***	P
		View telnet session window for indications from ***CS2100*** that the ***ReRoute*** control was applied and removed.	***ReRoute***	P
		View telnet session window for indications from ***CS2100*** that the ***Code Block*** control was applied and removed.	***Code Block***	P
		View telnet session window for indications from ***CS2100*** that the ***Gap*** control was applied and removed.	***Gap***	P
B.3.5.2	Verify that the ADIMSS can issue, list, and remove network management controls commands to the ***SIEMENS EWSD*** DSN switch.	View telnet session window for indications from ***EWSD*** that the ***Cancel From*** control was applied and removed.	***Cancel From***	P
		View telnet session window for indications from ***EWSD*** that the ***Cancel To*** control was applied and removed.	***Cancel To***	P
		View telnet session window for indications from ***EWSD*** that the ***Skip*** control was applied and removed.	***Skip***	P
		View telnet session window for indications from ***EWSD*** that the ***ReRoute*** control was applied and removed.	***ReRoute***	P
		View telnet session window for indications from ***EWSD*** that the ***Code Block Point*** control was applied and removed.	***Code Block Point***	P
B.3.5.3	Verify that the ADIMSS can issue, list, and remove network management controls commands to the ***Alcatel-Lucent 5ESS*** DSN switch.	View telnet session window for indications from ***5ESS*** that the ***Cancel From*** control was applied and removed	***Cancel From***	P
		View telnet session window for indications from ***5ESS*** that the ***Cancel To*** control was applied and removed	***Cancel To***	P
		View telnet session window for indications from ***5ESS*** that the ***Skip*** control was applied and removed	***Skip***	P
		View telnet session window for indications from ***5ESS*** that the ***ReRoute*** control was applied and removed	***ReRoute***	P
		View telnet session window for indications from ***5ESS*** that the ***Destination Code Cancel*** control was applied and removed	***Destination Code Cancel***	P

Table 2-5. SUT Interoperability Test Summary (continued)

Accounting Management					
Test Para.	**Test Purpose**	**Required Result**	**AMA Directory**	**Pass/Fail (P/F/NT)**	
B.4.5.1	Verify that the ADIMSS collects and stores switch CDR data files from the DSN switches.	For each switch, in turn, view cdr data files and check to see test call was captured.	on fep: /export/home/fep/ amadata/dmsama	Nortel CS2100	P
			/export/home/ewsdama	Siemens EWSD	P
			/export/home/jg2/ amadata/lucent	Alcatel-Lucent 5ESS	P
			/export/home/jg2/ amadata/meridian	Nortel CS1000M Single Group	P
			/export/home/jg2/ amadata/meridian	Nortel CS1000M Cabinet	P
			Windows2000: C:\CDR_SERVER\ 8710dr	Avaya S8710	P
			/export/home/jg2/amadata/igx	REDCOM IGX	P
Performance Management					
Test Para.	**Test Purpose**	**Required Result**	**Traffic Directories**	**Pass/Fail (P/F/NT)**	
B.5.5.1	Verify that the ADIMSS collects and stores switch traffic engineering data from the each DSN switch	The traffic data output by the switch (raw data) must be accurately captured to the correct AV file and sample various traffic data metrics to ensure the values for specific metrics in the AV file match those in the raw file.	Raw: (on fep) /export/home/fep/IW_DATA/<date>/raw/<time>	Nortel CS2100	P
			AV: (on fep) /export/home/fep/IW_DATA/<date>/AV/<time>		
			Raw: /iwdata/jg2/tmp	Siemens EWSD	P
			AV: /iwdata/jg2/<date>/AV<time>		
			Raw: /iwdata/jg2/<date>/raw/<time>	Alcatel-Lucent 5ESS	P
			AV: /iwdata/jg2/<date>/AV/<time>		
			Raw: /iwdata/jg2/<date>/raw/<time>	Nortel CS1000M Single Group	P
			AV: /iwdata/jg2/<date>/AV/<time>		
			Raw: /iwdata/jg2/<date>/raw/<time>	Nortel CS1000M Cabinet	P
			AV: /iwdata/jg2/<date>/AV/<time>		
			Raw: /iwdata/jg2/tmp	Avaya S8710	P
			AV: /iwdata/jg2/<date>/AV/<time>		
			Raw: /iwdata/jg2/tmp	REDCOM IGX	P
			AV: /iwdata/jg2/<date>/AV/<time>		

Table 2-5. SUT Interoperability Test Summary (continued)

Remote Access				
Test Para.	**Test Purpose**	**Required Result**	**Pass/Fail (P/F/NT)**	
B.6.5.1	Verify that the ADIMSS provides the ability for a user to log into a DSN switch and issue switch commands.	Switch command-line prompt.	Nortel CS2100	P
			Siemens EWSD	P
			Alcatel-Lucent5ESS	P
			Nortel CS1000M Single Group	P
			Nortel CS1000M Cabinet	P
		The switch will respond to the commands.	Avaya S8710	P
		The "Mml" session terminates	REDCOM IGX	P

LEGEND:

5ESS	- Class 5 Electronic Switching System	IGX	- Integrated Services Digital Network (ISDN) Gateway Exchange
A/S	- asynchronous/synchronous	Mml	- Man Machine Language
ADIMSS	- Advanced DSN Integrated Management Support System	N	- No
AMA	- Automatic Message Accounting	NM	- Network Management
AV	- Attribute Valve	NT	- Not Tested
CDR	- Call Detail Recording	P	- Pass
CS1000	- Communication Server 1000	Para	- Paragraph
CS2100	- Communication Server 2100	RJ	- Registered Jack
DSN	- Defense Switched Network	STP	- Signal Transfer Point
EI	- Ethernet Interface	SUT	- System Under Test
EIA	- Electronic Industries Alliance	T-STP	- Tekelec STP
EWSD	- Elektronisches Wählsystem Digital	Y	- Yes
F	- Fail		

12. TEST AND ANALYSIS REPORT. No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at https://stp.fhu.disa.mil. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at http://jit.fhu.disa.mil (NIPRNet), or http://199.208.204.125 (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at http://jitc.fhu.disa.mil/tssi.